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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/665,429	09/22/2003	Makoto Kubota	03500.017562	6520

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EXAMINER

KOSLOW, CAROL M

ART UNIT PAPER NUMBER

1755

DATE MAILED: 09/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/665,429

Applicant(s)

KUBOTA ET AL.

Examiner

C. Melissa Koslow

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3/9/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

The Application cited in information disclosure statement of 9 March 2004 have been considered and cited on form PTO-892. It is noted that one of the listed numbers (10/665,422) was incorrect. The correct number has been listed on form PTO-892.

JP 60-236404 cited in information disclosure statement of 9 March 2004 has been considered with respect to the explanation in the specification. The remaining Japanese references cited in information disclosure statement of 9 March 2004 have been considered with respect to the provided English abstracts.

Claim 7 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The limitation in this claim is already found in claim 6. Claim 6 includes all the limitations of claim 5, including the amount of halogen components.

Claims 1-5 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for sol-gel compositions for forming a piezoelectric film, does not reasonably provide enablement for any composition used to form a piezoelectric film which contains metal oxide derived dispersoids. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims.

The claims recite a composition used to form a piezoelectric film which contains metal oxide derived dispersoids. This encompasses any such compositions. However, the specification only teaches the use of sol-gel compositions used to form a piezoelectric film. Such a limited disclosure does not support the breadth of the instant claims. The examiner

suggests the incorporation of "sol-gel" before "composition" in claim 1 to overcome the rejection.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent 6,203,608.

This reference teaches piezoelectric films, such as lead titanate zirconate based films, produced by forming a sol-gel composition which comprises a dispersoid obtained from organometallic compounds, applying this composition onto a substrate, drying and baking the film. The reference teaches the compounds and the composition should be high purity and that it can be purified using conventional methods, such as those used by applicants (col. 4, lines 52-57). Applicant's specification shows that these processes will produce composition where the total content of elemental halogen, halogen ions and halogen compounds falls within the claimed ranges. The taught film is used in piezoelectric devices, such as oscillation elements and filters which have the structure of claim 6. The reference suggests the claimed composition, process and device.

Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent 6,066,581.

This reference teaches piezoelectric films, such as lead titanate zirconate based films, produced by forming a sol-gel composition which comprises a dispersoid obtained from

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organometallic compounds, applying this composition onto a substrate, drying and baking the film. The reference teaches the compounds and the composition should be high purity and free of elements which are detrimental to semiconductor devices, such as chloride. It is also known that the other halogens are detrimental. Therefore the reference teaches the composition should be halogen free. The reference suggests the claimed composition and process.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent 6,203,608 as applied to claim 6 above, and further in view of U.S. patent 6,247,799.

As stated above, U.S. patent 6,203,608 suggests oscillation elements comprising a piezoelectric layer having the claimed purity. It does not teach devices in which such elements are used. U.S. patent teaches such devices are commonly used ink jet recording heads, which conventionally have the claimed structure. Therefore one of ordinary skill in the art would have found it obvious to use the oscillation element of U.S. patent 6,203,608 as the oscillation element in conventional ink jet recording heads, as described in U.S. patent 6,247,799.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa Koslow whose telephone number is (571) 272-1371. The examiner can normally be reached on Monday-Friday from 8:00 AM to 3:30 PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Bell, can be reached at (571) 272-1362.

The fax number for all official communications is (703) 872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cmk  
September 3, 2004



C. Melissa Koslow  
Primary Examiner  
Tech. Center 1700